The IEEE Global Initiative on Ethics of Extended Reality

Industry Connections Activity Initiation Document (ICAID)

Version: 2.0, 13 July 2022

<mark>IC20-016-02 Approved by the CAG 12 October 2022</mark>

Instructions

- Instructions on how to fill out this form are shown in red. Please leave the instructions in the final document and simply add the requested information where indicated.
- Spell out each acronym the first time it is used. For example, "United Nations (UN)."
- Shaded Text indicates a placeholder that should be replaced with information specific to this ICAID, and the shading removed.
- Completed forms, in Word format, or any questions should be sent to the IEEE Standards Association (IEEE SA) Industry Connections Committee (ICCom) Administrator at the following address: industryconnections@ieee.org.
- The version number above, along with the date, may be used by the submitter to distinguish successive updates of this document. A separate, unique Industry Connections (IC) Activity Number will be assigned when the document is submitted to the ICCom Administrator.

1. Contact

Provide the name and contact information of the primary contact person for this IC activity. Affiliation is any entity that provides the person financial or other substantive support, for which the person may feel an obligation. If necessary, a second/alternate contact person's information may also be provided.

Name: Mathana
Email Address: xr-ethics-chair@ieee.org
Employer: Self
Affiliation: Self

IEEE collects personal data on this form, which is made publicly available, to allow communication by materially interested parties and with Activity Oversight Committee and Activity officers who are responsible for IEEE work items.

2. Participation and Voting Model

Specify whether this activity will be entity-based (participants are entities, which may have multiple representatives, one-entity-one-vote), or individual-based (participants represent themselves, one-person-one-vote).

Individual-Based

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IEEE SA STANDARDS ASSOCIATION

3. Purpose

3.1 Motivation and Goal
Briefly explain the context and motivation for starting this IC activity, and the overall purpose or goal to be accomplished.

Over the past two years, we have created a robust, global community of XR experts and ethicists. Extending the remit of our ICA would allow us to continue forming a professional community but update our existing published materials to ensure they evolve with the rapidly developing tech ecosystem of AR/VR. While much of the industry lexicon is shifting to the notion of a/the "metaverse", AR and VR technologies have many applications outside of a unified 'metaverse' ecosystem. UJust as social media being a subset of the internet, we believe that the metaverse is a subset of the XR ecosystem, and thus it is important for a dedicated organization to focus on ethical considerations around the underlying technologies used for immersive experiences.

Goals of the renewal of this Industry Connections group is to continue existing efforts of the IEEE Global Initiative on Ethics of Extended Reality in the publication of in-progress reports, updating of existing publications, creation of infographics (if applicable), workshops / special events (if applicable), participation at industry events and conferences (when applicable), and coordination of ethics-related activities across various IEEE SA technical standards working groups (if applicable). Furthermore, this ICAID will encourage existing working groups from associated already published and soon to be published other white papers to be included in existing PARs or create new ones,

To date, our group has published eight expert-authored whitepapers on various topics related to AR&VR issues. We have a small number of papers that have yet to be published, so a renewal would increase the likelihood of their publication.

3.2 Related Work
Provide a brief comparison of this activity to existing, related efforts or standards of which you are aware (industry associations, consortia, standardization activities, etc.).

- The Extended Reality in A/IS chapter featured in *Ethically Aligned Design* was released in June of 2020 and provides direct inspiration for the creation of this ICAID / Initiative. Three founders of this ICA were co-authors on this paper (Monique J. Morrow, John C. Havens & Mathana)
- IEEE P7030 Global XR Ethics Working Group (Chaired by Monique J. Morrow, inaugural chair of IC20-016)
- IEEE P2048 Standard for Metaverse Working Group

3.3 Previously Published Material
Provide a list of any known previously published material intended for inclusion in the proposed deliverables of this activity.

- XR Report: Extended Reality (XR) Ethics in Medicine*:*

- ○ *The scope of this report is the exploration of ethics-related issues to support the development, design, and deployment of XR applications in medicine and the aim is to initiate expert driven, multidiscipline analysis of the evolving XR Ethics requirements.*
- XR Report: Social and Multi-User Spaces in VR: Trolling, Harassment, and Online Safety:
  - ○ *The scope of this report is the exploration of ethics-related issues in terms of virtual clones and the right to your identity; the aim is to initiate expert-driven, multidiscipline analysis of the evolving XR Ethics requirements.*
- XR Report: Extended Reality (XR) Ethics in Education:
  - ○ *The scope of this report is the exploration of ethics-related issues to support the development, design, and deployment of XR applications in education and the aim is to initiate expert-driven, multidiscipline analysis of the evolving XR Ethics requirements, with a vision to propose solutions, technologies, and standards in future updates.*
- XR Report: Extended Reality (XR) and the Erosion of Anonymity and Privacy:
  - ○ *The scope of this report is the exploration of ethics-related issues in terms of anonymity and privacy of XR applications.*
- XR Report: Who Owns our Second Lives: Virtual Clones and the Right to Your Identity:
  - ○ *The scope of this report is the exploration of ethics-related issues in terms of virtual clones and the right to your identity.*
- XR Report: Extended Reality (XR) Business, Finance, and Economics:
  - ○ *The scope of this report is the exploration of ethics-related issues in XR business models.*
- XR Report: Extended Reality (XR) Ethics and Diversity, Inclusion, and Accessibility:
  - ○ *The scope of this report is the exploration of ethics-related issues to support the development, design, and deployment of XR applications in terms of diversity, inclusion and accessibility.*
- XR Report: Metaverse and Its Governance:
  - ○ *The report focuses on the growing governance gaps between the potential of extended reality (XR), the popularity of the term metaverse, and the scale of the adoption of metaverse.*

3.4 Potential Markets Served
Indicate the main beneficiaries of this work, and what the potential impact might be.

- XR Content Creators. XR content will come in many forms (immersive entertainment industry, "EdTech" content, business optimization, and many more), though standardized protocols and ethical best practices have yet to be formally developed at scale. XR content creators will benefit from the development of a community to understand and foster the creation of XR technology that helps to safeguard and improve human well-being within immersive environments.

- Academics: We have had strong and positive responses from scholars working in the field, as our publication have created a new source of expert material. Scholars in the Global South have

been particularly impressed with the global scope of our work. We intend to make deeper connections in XR communities in Latin America, Africa and Asia.

- <u>Policy Makers & Regulators</u>. Through thought leadership and the publication of resources, this ICA will continue to contribute recommendations for public policy.

- <u>End Users / Citizens</u>. The ultimate benefit of this initiative will be the end users and citizens of any and all immersive environments who largely may not have comprehended how deeply they will be affected by the growing influence of XR in every aspect of our lives. We will continue to iterate on best practices around issues like privacy and identity-rights in XR spaces.

- <u>XR Hardware Manufactures & Content Platforms</u>. While our first two years focused on content, platforms and portals, the renewal will allow us to focus more on hardware specs and engine interoperability.

- <u>Likely-XR-adopting industries.</u> The approach will assist industries that are seeking to adopt XR solutions for their respective workflows a way to 'get ahead' of situations that would cause harm to users and hurt a company's reputation based on issues they may not be equipped to handle without the information this Initiative will provide.

- <u>Industries Deploying XR based solutions.</u> As a number of industries will deploy XR products and services to enhance work flows, service delivery and product design, non-XR-specific industries have a stake in the egalitarian and ethical development of XR technologies.

3.5 How will the activity benefit the IEEE, society, or humanity?
Describe how this activity will benefit the IEEE, society, or humanity.

This Initiative will further position IEEE as a key leader in the business and policy arenas regarding AR & VR. It provides a natural step to bring together the technical experts already driving thought leadership in these arenas to come to consensus driven principles and applied policy recommendations that will enhance people's lives in immersive settings while ensuring all people have safe and holistically available access to their benefits.

This thought leadership will also translate directly into the pragmatic outcomes like open-access publications that contain concrete ethics-based stakeholder recommendations.

Our with IC20-016 is delineated from standards writing activities as we foster a 'forum' based community approach where industry practitioners are encouraged to knowledge share.

4. Estimated Timeframe
Indicate approximately how long you expect this activity to operate to achieve its proposed results (e.g., time to completion of all deliverables).
We may be able to graduate this ICA in Q4 of 2023, but are requesting the entire two year extension.

Expected Completion Date: 09/2024

5. Proposed Deliverables

Outline the anticipated deliverables and output from this IC activity, such as documents (e.g., white papers, reports), proposals for standards, conferences and workshops, databases, computer code, etc., and indicate the expected timeframe for each.

- Curate Community Calendar During Our Bi-monthly Plenaries: As we have done over the past year, our Plenary meetings provide a place where the XR community can make announcements around upcoming events. Previous events that have featured during our meetings have been: Microsoft DevDays, NASA Spacesuit Design Challenges, XR Access Symposium, George Washington University's XR and International Relations Symposium and many more. We have successfully brought together a
- Publication of In-Progress White Papers: While we have published 8 white papers via IEEE Explore, our contributors still have a number of papers in progress. New topics may include 'XR and Entertainment' and 'dual use applications of XR'.
- Contribute to Academic Research Agendas: As the field of XR is nascent, research methodologies are still be created. One Way our ICA believes we can contribute to the industry leadership is through creating roadmaps for responsible research methodologies for things like privacy-focused ethnographies during "in-game" qualitative assessments of co-participants.
- White Papers updates. Subject matter for white papers may include aspects of how Parents should guide their children regarding aspects of XR including identity, data, etc. Papers may also include discussions on time shifting and other benefits of XR that touch on applied ethics or values-driven design.

As we note in the funding section (Section 6), several of our deliverables will be tied to funding. These deliverables include:

- Turn Policy Recommendations into Infographics (*pending resources*). A goal here would be to convert any existing guidelines on XR Ethics for policy makers to expedite the design and proliferation of technologies that best inspire long-term human and ecological well-being in regards to the context of immersive realities. As policy implementation at different levels of governance will be predicated upon varying degrees of existing regulatory frameworks, this Initiative will seek to delineate frameworks for policy makers to implement 'minimum viable protections' through XR-related policies.

- Workshops (pending resources). (if funding is secured) These may be with corporate, policy, or general citizen audiences as a way to best address specific issues focused on any of XR issues.

- Event Collaboration with IEEE XR-related Technical Standards groups (optional). Co-coordinate an annual 'cross-polliation' meeting with IEEE technical standards working groups working on related issues:

- o   P2048 Standard for Metaverse Working Group
- o   P7030 Global XR Ethics Working Group

Proposed Timeframe:

Based on feedback from the Executive Committee (members listed below along with initial Exec Comm once Initiative is formed), the following is a proposed timeframe for initial deliverables:

- **End of Q1, 2023**: Bi-monthly plenary meetings (September & November) where presentations are given on the reports published to date. We will also explore the publication of our in-progress whitepapers.
- **End of Q2, 2023**: Organization of 'Version 2' working groups to draft updates to our existing whitepapers..
- **End of Q4, 2023**: Dependent on interest, coordinate a 'cross-pollination' event between the ICA and IEEE technical standards working groups to discuss how our ethical recommendations could be incorporated into technical standards.
- **2024:** Create infographic based on the recommendations of our published reports.

- **Other potential programming**
  - Online webinar / workshop planned to partner XR industry leaders and AIS policy makers around issues covered in our published reports. *(Given our experience with the labor intensive 2021 workshop of '[XR in the Classroom](), this deliverable is dependent upon funding and/or sponsorship.)*

5.1 Open Source Software Development
Indicate whether this IC Activity will develop or incorporate open source software in the deliverables. All contributions of open source software for use in Industry Connections activities shall be accompanied by an approved IEEE Contributor License Agreement (CLA) appropriate for the open source license under which the Work Product will be made available. CLAs, once accepted, are irrevocable. Industry Connections Activities shall comply with the IEEE SA open source policies and procedures and use the IEEE SA open source platform for development of open source software. Information on IEEE SA Open can be found at https://saopen.ieee.org/.

Will the activity develop or incorporate open source software (either normatively or informatively) in the deliverables? No.

6.   Funding Requirements
Outline any contracted services or other expenses that are currently anticipated, beyond the basic support services provided to all IC activities. Indicate how those funds are expected to be obtained (e.g., through participant fees, sponsorships, government, or other grants, etc.). Activities needing substantial funding may require additional reviews and approvals beyond ICCom.

Possibility. We may seek grants for special events, intra-IEEE coordination activities and graphic design. This may come in the form of in-kind donations, sponsorships, donations for operational expenses, and/or direct financial support.

Funding may be sought at a modest annual $5,000-$15,000 to support ongoing and special activities.

7. Management and Procedures

7.1 Activity Oversight Committee
Indicate whether an IEEE Standards Committee or Standards Development Working Group has agreed to oversee this activity and its procedures.

Has an IEEE Standards Committee or Standards Development Working Group agreed to oversee this activity? No

If yes, indicate the IEEE committee's name and its chair's contact information.

IEEE Committee Name:
Chair's Name:
Chair's Email Address:

Additional IEEE committee information, if any. Please indicate if you are including a letter of support from the IEEE Committee that will oversee this activity.

IEEE collects personal data on this form, which is made publicly available, to allow communication by materially interested parties and with Activity Oversight Committee and Activity officers who are responsible for IEEE work items.

7.2 Activity Management
If no Activity Oversight Committee has been identified in 7.1 above, indicate how this activity will manage itself on a day-to-day basis (e.g., executive committee, officers, etc.).

Some of the existing Executive Committee will be rolled over, and a call for participation put out to our membership. Existing ExComm members that will still be involved will be:

- Mathana, Chair
- Dr. Eleni Mangina, Executive Editor (you can include Co-Chair if that helps)

7.3 Procedures
Indicate what documented procedures will be used to guide the operations of this activity; either (a) modified baseline *Industry Connections Activity Policies and Procedures* (entity, individual), (b) *Abridged Industry Connections Activity Policies and Procedures* (entity, individual), (c) Standards Committee policies and procedures accepted by the IEEE SA Standards Board, or (d) Working Group policies and procedures accepted by the Working Group's Standards Committee. If option (a) is chosen, then ICCom review and approval of the P&P is required. If option (c) or (d) is chosen, then ICCom approval of the use of the P&P is required.

    (a) Modified baseline *Industry Connections Activity Policies and Procedures.*

8. Participants

8.1 Stakeholder Communities
Indicate the stakeholder communities (the types of companies or other entities, or the different groups of individuals) that are expected to be interested in this IC activity and will be invited to participate.

- XR Industry (hardware manufacturers, software developers, etc)
- Members of relevant IEEE Standards Working Groups focused on AR, VR and the metaverse
- Academia/Researchers
- Accessibility advocates
- Digital rights advocate
- Content creators

8.2 Expected Number of Participants
Indicate the approximate number of entities (if entity-based) or individuals (if individual-based) expected to be actively involved in this activity.

10-40 individuals within twelve months of the first Executive Committee meeting.

8.3 Initial Participants
Provide a few of the entities or individuals that will be participating from the outset. It is recommended there be at least three initial participants for an entity-based activity, or five initial participants (each with a different affiliation) for an individual-based activity.

Use the following table for an individual-based activity:

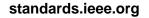| Individual Name	Employer	Affiliation
Mathana (Chair)	Independent Ethicist	Self
Eleni Mangina (Vice Chair)	University College Dublin	Self
Dylan Fox		XR Access
Jason Evans		Self
John King		Victory VR
John Okello		Self
Kent Bye	Voices of VR podcast	Self
Linda Spencer		Self
Michael Middleton		Self
Monique Morrow	Syniverse	Syniverse
Ricky Bacon		Self
Rosalinda Saravia	IEEE	Self
Samira Khodaei		Self
Sherin Mathew		Self
Stephanie Montgomery		Self

8.4 Activity Supporter/Partner

Indicate whether an IEEE committee (including IEEE Societies and Technical Councils), other than the Oversight Committee, has agreed to participate or support this activity. Support may include, but is not limited to, financial support, marketing support and other ways to help the Activity complete its deliverables.

Has an IEEE Committee, other than the Oversight Committee, agreed to support this activity? Yes

If yes, indicate the IEEE committee's name and its chair's contact information.

IEEE Committee Name: IEEE VR/AR Standards Committee (CTS/VRARSC)
Chair's Name: Yu Yuan
Chair's Email Address: y.yuan@ieee.org

Please indicate if you are including a letter of support from the IEEE Committee.

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